
Cancer Prevention and Survivorship: Evidence-based Nutrition and Lifestyle Choices

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Ten steps to help prevent cancer and potentially improve outcomes, including survival, in those with cancer:

Cancer is a worrisome diagnosis for any of us to face, but there are many things we can do using our own kitchens to reduce our risk – as well as improve the outcome if we *do* have cancer. The subject is large and research keeps moving, but the evidence continues to champion the deliciously primitive fundamentals of the Mediterranean diet, which is very good news for food lovers everywhere. Here are ten Mediterranean-flavored evidence-based cancer-fighting approaches to consider.

1. **Eat Mediterranean**
2. **Eat good fat, not low-fat**
3. **Eat your pound of vegetables**
4. **Keep your grains whole**
5. **Eat beans and legumes most days**
6. **Go easy on the red meat**
7. **Favor cultured dairy**
8. **Avoid sweets and sweet drinks**
9. **Get a waist**
10. **Exercise daily**

1. Eat Mediterranean¹

- **The Mediterranean diet is associated with 40-60% less cancer** – as well as marked reductions in type 2 diabetes, heart disease, stroke, and dementia.
- Choose whole foods mainly from plant sources – raw or cooked vegetables as part of every meal, fresh whole fruit, raw nuts and seeds, beans, and whole grains.
- Use extra-virgin olive oil as your main kitchen oil, include aged cheese and plain yogurt as main sources of dairy, and eat more fish.
- Keep animal proteins as a modest part of the diet – think condiment rather than main course.

2. Eat good fat, not low-fat

- **The Mediterranean diet is not a low-fat diet!** It is characterized by a pattern of *good* fat, like phenol-rich extra-virgin olive oil (which in several studies has been reported to be more beneficial against cancer than other forms of added fat), avocados, raw nuts and seeds (like sesame, sunflower, flax, and pumpkin seeds), dairy (like whole-milk yogurt and aged cheese), and eggs.
- Raw nuts, particularly walnuts, have also been associated with breast cancer risk reduction. Keep raw nut intake to one – two handfuls per day. Roasted nuts do not have the same degree of benefit and are more likely to be eaten to excess.
- We recommend up to 4 tablespoons of **flaxseed meal** daily, particularly for breast and prostate cancer.
- Oil-rich fish like salmon, tuna, and sardines are another source of good fat. Consider eating them a few times a week, or take a fish or cod liver oil supplement.

¹ Sofi, F. AJCN 2010;92:1189-96

3. Eat your pound of vegetables²

- Evidence supports at least one pound each day. Aim for a goal of nine servings of vegetables and fruit in meals and snacks daily, with greater emphasis on vegetables than fruit. Whole, not juiced! Fruit juices lead to more diabetes and obesity, and juicing eliminates most phenolics, vitamins, minerals, and micronutrients.
- Eat as wide a variety as you can – red, orange, yellow, gold, green, blue, purple, and white. Fresh and raw is good, but cooked is fine and even preferable in some cases. (A well-known example of the benefits of cooking is the tomato, which should be cooked for the optimal absorption of the antioxidant lycopene.)
- If you have a rocky relationship with vegetables, start with the ones you like, raw or cooked. Need more ideas? Read chapter 8 in *Good Food, Great Medicine*, especially the section on roasted vegetables starting on page 123.
- Some vegetables and fruits may be more beneficial than others. Aim for dark greens and anything in the cabbage family (like broccoli, Brussels sprouts, cauliflower, cabbage, bok choy), onion, garlic, mushrooms, berries, and citrus fruit.
- Frozen vegetables and fruit can be almost as good as fresh, but read the labels of canned produce carefully to avoid sweeteners and other enhancements.

4. Keep your grains whole

- An unprocessed whole grain is an exquisitely practical coalition of parts – the fibrous bran, rich germ, and starchy endosperm – each with a specific function and benefit. The bran fiber slows the absorption of starch, and both bran and germ supply most of the fiber, vitamins, minerals, healthy oils, and part of the protein. To get the most benefit from this magnificently-designed food, eat it in as intact a form as you can, or at least with as few processing steps between the whole grain product and the original grain. The bigger the particles of grain you eat, the more slowly and steadily they will raise your blood sugar as they are digested.
- To give yourself the absolute maximum benefit, stick to grains that are either whole (like oat

groats cooked overnight in a crock pot or a salad made with whole cooked barley) or minimally processed (like a heavy sprouted grain bread or European sourdough rye, both of which can usually be found refrigerated in some markets). Replace white bread and white pasta with 100% whole grain products, and white rice with options like quinoa or brown rice.

- **READ INGREDIENT LISTS!** Look for the words “100% whole grain”, and remember that the finer the texture, the more it has been processed. Excessive processing destroys most micronutrients, alters fiber characteristics, and makes the starches act more like simple sugars. Most breads, even whole wheat breads, fall into the same category.

“Whole grain” breakfast cereals?

Once a whole grain has been roasted and crushed and made into a batter and extruded and steamed and puffed and dried and finished with spray-on vitamins and minerals and then boxed and left on a shelf for months, is it still a whole grain? The TV commercials say it is. The manufacturer says it is. The box says it is. Even the ingredient list says it is. But has it retained the benefits of the original whole grain?

Probably not. We don’t even know how to adequately measure the damage that has been done to the carbohydrate, the nucleic acids, the fatty acids, the vitamins, the minerals – and who knows what else? – after the repeated heating and extensive processing. Even when it’s 100% whole grain and without added sugar, the grains have been processed to such a degree that the starch molecules and fiber have been altered, and are far more likely to raise blood sugars and insulin levels.

5. Eat beans and legumes most days³

- This includes split peas, lentils, dried peas (like black-eyed peas, chickpeas), dried beans (like black, pinto, navy, white, red, soy), and fresh beans (like baby lima and green soybeans or *edamame*). Beans are a complete protein when eaten with whole grains.
- As for soy, avoid soy milks (most of which contain added sweetening and other

² AICR 2007

³ Manios, Mediterranean Diet as Nutrition Education and Dietary Guide, Forum Nutr 2006

enhancements) and soy protein powders. Stick to traditional soy foods like edamame (fresh soybeans, found in many supermarket freezers), tofu, miso, and tempeh.

Soy is not magic, and it's not a villain, either.

It's just another bean. At least in adolescent women, it is associated with less lifetime risk of breast cancer. Also, women with breast cancer who eat soy *may* have better outcomes; the data are fuzzy.

6. Go easy on the red meat

- The American Institute for Cancer Research suggests limiting red meat to less than 18 ounces per week.⁴
- As we mentioned earlier, meat should be seen as a condiment rather than the main feature. (The bright side is that you will have more room on your plate for cancer-fighting vegetables.)
- Grass-fed meat is probably superior; wild things like venison and elk might be even better.

7. Favor cultured dairy

- Dairy foods in their generally unprocessed form can be part of a healthy diet. The evidence favors cultured dairy foods such as aged cheese, plain yogurt and kefir (a yogurt-like cultured milk drink) rather than milk itself. This is not to condemn milk, but simply to point out that the greatest historical evidence for benefit concerns cultured dairy foods.
- Two or three servings per day are probably a reasonable maximum, and should be enough to supply your calcium needs without a calcium supplement.
- I can't make a strong case for either low-fat or whole fat dairy. However, a strong case can be made against sugar delivery systems *disguised* as dairy foods: for example, an eight-ounce container of non-fat yogurt can include 6 – 8 teaspoons of added sugar! As usual, always read ingredient labels.
- Probiotic-rich **plain** yogurt and kefir (sweeten them with fresh fruit and honey) contain live microorganisms that provide a health benefit. We like the locally-produced *Nancy's* brand the

best. Multiple mechanisms are involved that may be useful for cancer risk reduction, immunity, insulin resistance, diarrhea, lower cholesterol, inflammatory bowel disease, heart disease, and peptic ulcer.

Added or naturally-occurring sugar?

A nutrition panel can report 16 grams of sugar in a 226-gram tub of plain (unsweetened) low-fat yogurt, but you will notice from the ingredient list that there is no added sweetener – the sugar is from the lactose in the milk.

The same amount of *pre-sweetened* yogurt can contain up to **44 grams of sugar!** One of the problems with fat-free yogurt, by the way, is that more sweeteners will usually be added to make the yogurt taste “good”.

Naturally-occurring fats and sugars are always better than added fats and sugars. ALWAYS.

8. Avoid sweets and sweet drinks

- Higher intake of concentrated sugars and starches appear to be associated with more cancer, worse cancer outcomes, diabetes, obesity, heart disease, and dementia. Some of the risk is likely due to higher insulin levels with increased sugar and starch load in the diet.
- **Reduce your sweet tooth.** If you need a sweetener, raw honey is probably the optimal unprocessed sweetening option – but use as little as possible. Remember that agave nectar is just another highly refined sugar.
- **Sweet drinks include fruit juices** (even natural unsweetened) **and diet sodas.** Calorie-free, artificially sweetened foods and drinks appear to contribute just as much to obesity as the stuff with real sugar. Switch to water, chilled sparkling water, tea, or coffee. If you need a sweetener, use raw honey and use as little as you can.
- **Read the ingredient label!** Most meal replacement drinks and “protein bars” are very high in sugars/carbohydrates. If a food is designed for convenience, it is unlikely to be healthy. Grab an apple and a handful of raw almonds instead. Now *that's* convenience! (See following page for our suggestion for a whole food meal replacement alternative.)

⁴ AICR 2007

Meal replacement drinks

We often find it valuable to recommend meal replacement drinks for patients with cancer who are struggling to get enough calories, post-surgical patients, or for elderly patients who have difficulty eating for various reasons.

Good nutrition in a liquid form can be difficult to find in a commercial product, and the evidence argues that a heavily processed formula high in simple sugars and excessive pro-inflammatory omega 6 fatty acids is more likely to suppress a good immune response.

A typical example is this ingredient list from a major brand of meal replacement drinks: *Water, sugar (sucrose), corn maltodextrin, milk protein concentrate, soy oil, soy protein concentrate, canola oil, corn oil, natural and artificial flavors, soy lecithin, carrageenan, FD&C red #3.*

The best nutrition is from whole food sources, with their huge spectrum of micronutrients including phenols and other anti-oxidants, nucleic acids, vitamins, minerals, fibers, healthy fats, proteins – and perhaps, just as importantly, those unknown nutrients that are present only in whole foods, not in their semi-synthetic or highly refined counterparts.

So, instead of buying a prepared meal replacement drink, consider switching to simple home-made smoothies instead. By making your own yogurt and fruit smoothies you will usually get far less sugar, a better fat profile, whole food nutrients, and healthy probiotics to promote vigorous immunity. Plus, you'll save money.

There is an added bonus with smoothies in that anything you want to emphasize in the diet can be slipped in, including high-quality calories like extra-virgin olive oil or some added protein like an egg or some soft tofu. Once you find a combination you like, you can make a large batch and freeze it in single serving containers. (For more ideas and a master recipe, see pages 78 – 81 of *Good Food, Great Medicine.*)

9. Get a waist

- Excess weight increases your risk of cancer, cancer reoccurrence, dementia, diabetes, heart disease, and stroke. Aim for a waist measurement of less than 35 inches for women and less than 40 inches for men. (This guideline may be inaccurate for slightly-built people.)
- The weight you carry around your middle is more hazardous for heart disease, diabetes, and some cancers than weight elsewhere on your body. If you are overweight, general weight loss is not as important as being fit and losing inches around your waist.
- If weight is not coming off, minimize or eliminate potatoes, corn, rice, dried fruit, and bread. (Even true whole-grain bread may be a problem if you are not losing a pound a week.)
- If you are overweight, eating less may be the single most important piece of dietary advice. Eat smaller portions, and eat slowly savoring your food. Try to stop eating before you're full. Smaller plates are often helpful. Constantly re-think your ideas of portions. Too much food, even very *good* food, is still too much. If you are still hungry – eat some more vegetables. Eat whole fruit for dessert.

Most people who eat a low-fat diet also eat more refined carbohydrates. When studied head-to-head against diets higher in fat, low-fat diets usually have worse outcomes for weight loss, blood sugar and cholesterol levels. **They have not been associated with lower cancer rates in prospective trials.**

10. Exercise daily

- Daily exercise is associated with less cancer as well as better survival in those with cancer. Also, studies show that exercise during chemotherapy reduces fatigue and other symptoms associated with treatment.
- Brisk walking is one of the best-studied exercises – aim for 30-60 minutes daily. It doesn't have to be all at once, and anything is better than nothing.
- If you tend to be sedentary, try make a point of standing up and moving around frequently. Take the stairs whenever you can! Avoid TV!

Other thoughts

Plan tomorrow's meals, drinks, snacks, and exercise TODAY!

Tomorrow usually comes, and making better choices is easier when we plan ahead.

Minimize alcohol

Drinking alcohol is a balance between risk (particularly breast cancer) and benefit (reduced heart disease). **Keep alcohol to 1 drink or less per day for women and up to 2 drinks per day for men.** (A drink is generally defined as 5 ounces of wine, 12 ounces of beer, or 1½ ounces of spirits.) A diet high in folate-rich foods like spinach and lentils (**not** supplemental folic acid) likely reduces the cancer risk associated with alcohol.

Nutritional supplements?

When studied properly, nutritional supplements such as vitamin E, beta carotene, and folic acid can be associated with worse health. Even calcium supplements seem to be associated with more heart disease. **Nutritional supplements should be used rarely, with a very specific purpose in mind, and with reasonable evidence.**

Vitamin D

The jury is still out, but it's worth talking about. Our goal is typically 1,000 - 2,000 international units (IU) of vitamin D3 (cholecalciferol) daily, to achieve adequate blood levels of greater than 30 - 60 ng/ml. Also, sardines, salmon, and sunlight are good sources of vitamin D. I would like to see sunlight used more as a source of vitamin D: having your arms and legs exposed to the sun, without sunscreen, for about 20 minutes 3 times per week in sunny months may be enough for many people.

Fish oil and cancer

Fish oils and other omega 3 fatty acids are a *part* of a diet often associated with lower rates of cancer. The *VITAL* study showed significantly less breast cancer in women who took fish oil supplements.

Read ingredient lists

Do you look at the *Nutrition Facts* on labels to see if the food is good for you? Well, stop it! Instead, search the label until you find the *Ingredient List*. It is safe to say that most of the preceding advice is wasted if you don't read ingredient lists. This is the most important information because it tells you exactly what is in the product. This is where we must start in evaluating our food.

The *Nutrition Facts* panel, on the other hand, can distract us with facts that may not actually offer useful information about the food. The calorie count is a good example; to figure out how many calories we need and what our diet is actually supplying is not a simple calculation.

Serving sizes and calorie counts tend to be inaccurate – and even if the calories are known, they are not necessarily fully absorbed. Whole nuts typically have 15-20% of their calories unabsorbed due to particle size, but refined carbohydrates – like bagels, sweet drinks, and alcohol – are very efficiently absorbed. So the caloric content of whole foods may be off by as much as 15 percent, making direct comparisons unreliable.

To add to the confusion, the *Nutrition Facts* label offers speculations on the “daily value” percentages. What do we do with information like “8% total carbohydrate”? Our bodies care more about the *kind* of carbohydrate – is it refined or is it naturally occurring in a whole food? The ingredient list will tell us by identifying the source.

Six foods to avoid

1. Avoid refined grains

This is a huge group of foods which includes most breads, baked goods, cookies, crackers, pasta, ready-to-eat breakfast cereals, and white rice, as well as items like energy bars.

2. Avoid sugar and sweet drinks

This may seem obvious, but the downside of sugar can hardly be overemphasized. Even worse, sugar seems to turn up as a significant ingredient even in products that are marketed as healthy. Concentrated sugars (including agave nectar and other fancy forms of sugar) and sweet drinks are nutritionally bankrupt calories and major contributors to weight gain.

Natural sweeteners are better

▪ **Fresh fruit** is the optimal sweetener, but is generally not sweet enough to be an efficient sweetening agent. Canned and dried fruit are higher-intensity sweeteners, but both need to be carefully frisked for added sugar and chemicals. Read their ingredient lists – even simple dried fruit often has added sugar. Keep in mind that all dried fruits are concentrated sources of sugar that should be eaten on a very limited basis, especially for anyone who is struggling with excess weight.

▪ **Honey** in its raw form is a truly unrefined sweetener. In fact, if you don't mind herding bees, you can harvest your own honey and spin it straight from the comb. Also, even the mildest clover honey is flavorful enough to reduce chances of it being eaten in the same quantities as sugar.

▪ **Molasses** and **pure maple syrup** both have nutritional value, but should be used only as replacements for the more refined sweeteners. Like honey, they have significant flavors that tend to keep us from using too much at a time.

Avoid artificial sweeteners

There are two lines of reasoning to suggest that it is wise to avoid artificial sweeteners (like aspartame and sucralose) just as much as regular sugars and corn syrup. **One**, artificial sweeteners seem to be about equally harmful as other sweeteners for causing obesity and insulin resistance, which in turn increase cancer risk. **Two**, artificial sweeteners maintain your sweet tooth, making it harder to reduce the refined carbohydrate foods that contribute to ill-health, including cancer, heart disease, obesity, diabetes, and dementia.

3. Avoid hydrogenated and partially hydrogenated oils

This includes margarine and vegetable shortening and a *huge* number of packaged foods. **Also, minimize vegetable oils (except extra-virgin olive oil)**. Most vegetable oils (e.g. canola, corn, safflower, soy), unlike olive oil, are almost inedible when first extracted so they are highly refined and deodorized. This even applies to "cold pressed" and "expeller pressed" oils. These oils also tend to be high in omega 6 fatty acids, which are associated with increased risk of breast cancer.

4. Avoid preserved (processed) meats

Deli meats, bacon, sausages, hot dogs – and yes, honey-baked ham – seem to be associated with higher rates of cancer, as well as heart disease and diabetes. Reasons are unclear. Eat meats that were recently attached to an animal.

5. Avoid fake foods

This includes products like egg substitutes, non-dairy creamer, and all artificial sweeteners. See comments on artificial ('low-calorie') sweeteners on this page.

6. Avoid commercially fried foods

This means any foods you don't fry yourself.

Need alternatives to refined carbohydrates?

Try these from *Good Food, Great Medicine*.

Ready-to-eat breakfast cereals?

We talk about these on page two of this handout. Try replacing with the granola or muesli on page 77. Check out **other breakfast options** on pages 72-81.

White rice?

Try substituting brown rice. See pages 170-77 for tips and recipes. Better yet, substitute protein-rich quinoa (page 180).

Pre-sweetened yogurt?

Buy plain yogurt and sweeten with honey and fresh fruit. (See pages 78 and 97.)

Bread?

The coarser the grain, the better! (See page 16.) Or make your own from chapter 13. If you need to watch your weight, avoid bread and pasta as much as possible – even the good stuff.

The bottom line

A whole food Mediterranean diet and daily exercise are associated with 40-60% less cancer and improved cancer outcomes – **and** marked reductions in type 2 diabetes, heart disease, stroke, and dementia. In my practice, patients who take these steps appear to have reduced side effects from conventional cancer therapies. Good diet and lifestyle choices do not substitute for conventional cancer therapies, but they are wise additions to any treatment your oncologist recommends.

A whole food Mediterranean diet⁵

Here is a brief review of what we call a whole food Mediterranean diet. This whole food version combines conventional Mediterranean diet concepts with minimally processed foods that have their nutrients largely intact.

- **Eat food mainly from plant sources.**

This includes vegetables, fruits, whole grains, beans and legumes, raw nuts, and seeds. The greatest benefit appears to be associated with vegetable intake. Try to make vegetables, raw and/or cooked, part of every meal, and fresh fruit for dessert.

- **Eat whole grains and beans daily.**

Although the contemporary Mediterranean diet includes white rice, white bread, or white pasta, the whole food version replaces them with their 100% whole grain counterparts. Beans and legumes can be home-cooked or canned – but if canned, read ingredient lists!

- **Use extra-virgin olive oil as main fat.**

We suggest replacing most other oils and fats with extra-virgin olive oil. Virgin coconut oil and modest amounts of butter are fine options.

- **Eat plenty of fish.**

Oil-rich fish are especially high in valuable nutrients – salmon, sardines, and light tuna, for example. Keep portions of other animal proteins smallish, taking up no more than one quarter of your total plate area. Think of meat as a condiment, not the main part of the meal. Save your appetite for the most important food – vegetables and beans!

- **Eat cultured dairy.**

This includes yogurt and kefir (a yogurt-like drink) and cheese. Yogurt and kefir are also a good source of probiotics (microorganisms that benefit the gut). Most authorities recommend low-fat dairy foods but I am not aware of good data showing that low-fat dairy is preferable to regular dairy.

- **Drink small amount of wine**, generally with meals. (See page 5 of this handout.)

⁵ <http://www.oldwayspt.org/>